definite risk of accident, which could lead to spills, fires or loss of life (Aspen, 1992). The environmental impacts from such spills would be significant. Denial of the lease would shift this transportation to some combination of pipeline, rail and truck transport, each of which has its own small, but measurable risks of spillage (Chambers, 1994). The amounts spilled, however, are usually much smaller than those from tanker accidents.

One of the major potential impacts of an accident with tankers or barges is the possibility of an oil spill. Numerous previous studies have discussed this type of accident taking place while vessels are transiting the Bay-Delta system or outside of the Golden Gate. One of the most complete collections of oil spill trajectory models for such a spill is contained within the FEIR for "The Consideration of a New Lease for the Unocal refinery at Oleum, California "(Chambers, 1994). The Unocal site is just downstream (approx. 4 miles) from the Shore Terminals facility and the FEIR models several scenarios that would apply equally to vessels in transit to this facility. Only one spill was analyzed east of the Carquinez Straits, however, and that site was right at the entrance. The results of the several model runs can be summarized by saying that there is no point within San Francisco, San Pablo, Suisun or Grizzly Bays that escapes the possibility of oiling in the event of a major spill (Chambers, 1994). Spills outside of the Golden Gate could impact areas from Point Reyes to below Point Ano Nuevo. Within these impacted areas there would be significant environmental impacts to water quality, wetlands, marine biology, birds and plant biology (Chambers, 1994).

In addition to spills occurring from accidents in transit, oil can be spilled at the wharf itself, from accidents, loading/unloading equipment failures or pipeline failures. No modeling runs or other analysis has been done for such a spill at Shore Terminals facility. It has been estimated that the probability of an accident at the wharf releasing product is such that it could happen once every 140 years (Thomas Reid Assoc.,1994). The wharf has been in continuous operation since 1974, and has only had one spill when a flange failed on a barge, releasing approximately 17 barrels (718 gallons) of diesel fuel from a barge (Thomas Reid Assoc.,1994).

Accidents do not have to release oil or product to be considered a major impact. For example, a collision of a tanker with a loaded ferry even if no oil were released, has the potential of causing many casualties. The probability of such collisions is a factor of weather, equipment, traffic volumes and crew performance.

The number of vessels calling at the Shore Terminal wharf over the last few years is shown in Attachment 6A, and averages 51 tankers and 66 barges over the course of a year. With over 8,000 commercial vessel transits of the Carquinez Straits each year (Caltrans, 1997), Shore Terminals can be seen as providing approximately 1.5 percent of the traffic in the project area. Wickland does not foresee an increase in the number of barges or tankers calling at the wharf over the renewed term of the lease, so the overall probability of an accident at the wharf should not increase. However, the probability of an accident in transit is primarily a function of total ship traffic along the routes traveled, and there will be a cumulative increase in the number of vessels using the same routes as the Shore Terminals traffic, so the probability of a collision